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EXAMINER	
SHAH, PARAS D	

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/762,060	CHU ET AL.	
	Examiner	Art Unit	
	Paras Shah	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15, 17-25, 29-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is in response to the Arguments and Amendments filed on 01/21/2008. Claims 1-33 are pending and have been examined with claims 16 and 26-28 being cancelled. Claims 30-33 are newly added. The Applicants' amendment and remarks have been carefully considered, but they are not persuasive and do not place the claims in condition for allowance. Accordingly, this action has been made FINAL.

2. All previous objections and rejections directed to the Applicant's disclosure and claims not discussed in this Office Action have been withdrawn by the Examiner.

Response to Arguments

3. Applicant's arguments (pages 1-6) filed on 01/21/2008 with regard to claims 1-29 have been fully considered but they are not persuasive.

Applicant has indicated that the Hon reference teaches a conventional structure of syllables for use in a speech processing system. Further, the Applicant has stated that the secondary reference of Chen *et al.* represents a structure that departs form the structure as that of Hon. Hence, the Applicants has come to the conclusion that Hon *et al.* and Chen *et al.* cannot be combined as they both teach two different models. The Examiner traverses this argument by citing col. 7, lines 18-31 and Appendix A, col. 17-col. 18. It is shown in the cited sections as well as the Table that the initial can contain a glide. Specifically, the table shows a pseudo initial that contains a consonant and a vowel. Hence, Hon suggests that the initial can incorporate a vowel and names such a structure as a pseudo initial. Chen *et al.*, in col. 5, lines 22-27 and 40-45, the cited

section shows the use of glides being embodied with the initial. Hence, the suggestion as denoted by Hon *et al.* using pseudo initials further shows that the combination of Hon and Chen would have been obvious to one of ordinary skilled in the art at the time the invention was made. Further, Chen's structure allows for a modification to the conventional structure of an initial.

In response to the second argument, where the Applicants the secondary reference of Chen *et al.* does not teach the final part comprises a plurality of phones. The Examiner traverses this argument by citing Chen, col. 4, lines 7-20, where the cited section describes that syllables are divided into two parts. The second portion known as the final or toneme in this case can have one or two single phones. Hence, a plurality of phones exists as shown by Chen. Further, Hon in Appendix A (col. 17-18) shows finals containing plurality of phones that contain tonal information. Hence, the combinations of Hon in view of Chen in view of Huang teach the limitations as present in the independent claims 1, 20, and 29.

Claim Objections

4. Claims 17-19 are objected to because of the following informalities: Since claim 16 has been cancelled, claims 17-19 should depend upon claim 1, where subject matter of claim 16 is contained. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-4, 7-12, 15, 17 and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hon *et al.* (US 5,680,510) in view of Chen *et al.* (US 5,751,905).in view of Huang *et al.* ("Whistler: A trainable Text-to-Speech System", 1996).

As to claims 1, 9, and 29, Hon *et al.* teaches

a speech processing system adapted to receive an input related to one of speech and process the input (see col. 4, line 47) to provide an output related to one of text (see col. 4, lines 46 and col. 9, lines 67-col. 10, lines 1-8), the speech processing system (see col. 9, line 65) accessing a module (see col. 5, lines 30-33) (e.g. The accessing of a storage area of possible phones is seen.) derived from a phone set having a plurality of phones for a tonal language (see col. 4, lines 30-35 and col. 6, 44-48) (e.g. The final part of a syllable consists of two or fewer phones as is inherent in the Mandarin Chinese language (see col. 2, lines 1-5)), the phones being used to model syllables used in the module (see col. 6, lines 4-5), the syllables having an initial and final part (see col. 6, lines 4-5), wherein the final part comprises a plurality of phones (see col. 2, lines 3-4) (e.g. There can be multiple phones existing for the final component of a syllable) that jointly and implicitly carry the tonal information (see col. 6, lines 53-63 and col. 7,

lines 65-col. 8, lines 1-21) (e.g. It is seen by the reference that the tonal information is dependent upon the initial, final, or a combination of the two).

However, Hon *et al.* does not specifically teach a glide, which is embodied in the initial.

Chen *et al.* does teach the glide being included and embodied in the initial (see col. 5, lines 42-45).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the speech processing system taught by Hon *et al.* with the inclusion of a glide as the initial taught by Chen *et al.* The motivation to have included the element involves the reduction in the number of phonemes and reduces the context dependency of the consonants (see Chen *et al.*, col. 4, lines 42-46).

However, Hon *et al.* in view of Chen *et al.* do not specifically teach the input being text and the output being speech.

Huang *et al.* does teach the conversion of text to speech from learning methods of model parameters (see Abstract).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the speech processing system taught by Hon *et al.* in view of Chen *et al.* and include a text to speech converter taught by Huang *et al.* The motivation to have included such an element is to have an alternative means for inputting as well as producing a synthesized speech output based upon model parameters of the system (see Huang *et al.*, Abstract) as

would benefit the system of Hon *et al.* by using the tone related information as output speech for producing speech resembling the user.

As to claims 2, 10, and 30 Hon *et al.* in view of Chen *et al.* in view of Huang *et al.* teaches all of the limitations as in claim 1, above.

Furthermore, Hon *et al.* teaches each phone of the final part includes information about the tone (see col. 6, lines 53-63 and col. 7, lines 65-col. 8, lines 1-21, and Appendix A).

Furthermore, Chen *et al.* teaches each phone of the final part includes information about the tone (see col. 4, lines 7-20).

As to claims 3, 4, 11, and 12, Hon *et al.* in view of Chen *et al.* in view of Huang *et al.* teaches all of the limitations as in claim 1, above.

Furthermore, Hon *et al.* the tonal language comprises a plurality of different tones with different levels of pitch (see col. 6, lines 55-56) (e.g. The Hon *et al.* reference discloses the use of two tones in the example. It is obvious to one of skilled in the art that these tones represent either high or low tones).

As to claim 7, 15, and 32, Hon *et al.* in view of Chen *et al.* in view of Huang *et al.* teaches all of the limitations as in claim 1 and 30, above.

Furthermore, Hon *et al.* each syllable comprises the same form having the initial and the final, the final having two phones carrying partial tonal information

each (see col. 6, lines 53-63 and col. 7, lines 65-col. 8, lines 1-21) (e.g. Since the final can possess diphthong or two phones, the tonal information being dependent on the initial, final, or a combination of the two).

Furthermore, Chen *et al.* teaches each phone of the final part includes information about the tone (see col. 4, lines 7-20) (e.g. The combination of the two phones produces a different tone level from 5 different tones.).

As to claims 8 and 31, Hon *et al.* in view of Chen *et al.* in view of Huang *et al.* teaches all of the limitations as in claim 1 and 30, above.

Furthermore, Hon et al. teaches wherein each syllable is represented by three parts (see Appendix A, col. 17-col. 18, i.e. AH_A and ANG_1) comprising a first part having information pertaining to the initial part (see above example, AH_A), a second part having information pertaining to a first phone of the final part (see above example, ANG) and a third part having information pertaining to a first phone of the final part (see above example, 1, relating to the tone of the syllable) (e.g. The structure shows an initial a final and tonal information for the syllable.

Furthermore, Chen *et al.* shows a similar structure three part structure (see col. 5, lines 50-60, premes are shown. In col. 5, lines 5-15, a second part consisting of a phone for the final part is shown. Also, the third part shows tonal information regarding the phone as seen by the numerical numbers.)

7. Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hon *et al.* (US 5,680,510) in view of Chen in view of Huang *et al.* as applied to claims 1 and 9 above, and further in view of Akinlabi *et al.* ("tonal Phonology of Yoruba Clitics").

As to claims 5 and 13, Hon *et al.* in view of Chen in view of Huang *et al.* teach the phone being associated with a categorical level and the limitations as in claims 1 and 9, above.

However, they do not specifically teach the levels of pitch comprising five categorical levels.

Akinlabi *et al.* teaches three types of tones being associated phonemically (see page 2, sect. 2, lines 1-2).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the speech processing system taught by Hon *et al.* in view of Chen *et al.* in view of Huang *et al.* with three categorical levels taught by Akinlabi *et al.* The motivation to have included five categorical levels involves the inclusion of other tone languages such as Yoruba, where three tones are present (see Akinlabi *et al.*, page 2, sect. 2, 1st paragraph) as would benefit the teachings of Hon *et al.* to include other tonal languages using tonal information.

8. Claims 6, 14, 18, 19, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hon *et al.* (US 5,680,510) in view of Chen *et al.* in view of Huang *et*

al. as applied to claims 1, 9, and 32 above, and further in view of Chen (2) ("Recognize Tone Languages Using Pitch Information on the Main Vowel of Each Syllable").

As to claims 6, 14, 18, and 33, Hon *et al.* in view of Chen *et al.* in view of Huang *et al.* teach the phone being associated with a categorical level.

However, they do not specifically teach the levels of pitch comprising five categorical levels.

Chen (2) discloses the use of five pitch levels (see page 4, sect. 7.1, lines 1-3).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the speech processing system taught by Hon *et al.* and Huang *et al.* with five categorical levels as taught by Chen (2)*et al.*. The motivation to have included five categorical levels involves the inclusion of other tone languages such as Thai, where five tones are present (see Chen (2) *et al.*, page 4, sect. 7.1).

As to claim 19, Hon *et al.* in view of Chen *et al.* in view of Huang *et al.* teach all of the limitations as in claim 1, above.

However, they do not specifically teach he tonal language comprising Vietnamese

Furthermore, Chen (2) teaches the tonal language comprising Vietnamese (see page 4, sect. 7.2).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the speech processing system taught by Hon *et al.* and Huang *et al.* with Vietnamese as taught by Chen (2)*et al.*. The motivation to have included such language involves the inclusion of other tone languages such as Vietnamese where tonal information is present (see Chen (2) *et al.*, page 4, and sect. 7.1).

9. Claims 20, 21, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hon *et al.* (US 5,680,510) in view of Huang *et al.* and in view of Chen *et al.* (US 5,751,905).

As to claims 20 and 21, Hon *et al.* discloses

a speech processing system adapted to receive an input related to one of speech and process the input (see col. 4, line 47) to provide an output related to one of text (see col. 4, lines 46 and col. 9, lines 67-col. 10, lines 1-8), the speech processing system (see col. 9, line 65) accessing a module (see col. 5, lines 30-33) (e.g. The accessing of a storage area of possible phones is seen.) derived from a phone set having a plurality of phones for a tonal language (see col. 4, lines 30-35 and col. 6, 44-48) (e.g. The final part of a syllable consists of two or fewer phones as is inherent in the Mandarin Chinese language (see col. 2, lines 1-5)), the phones being used to model syllables used in the module (see col. 6, lines 4-5), the syllables having an initial and final part (see col. 6, lines 4-5), wherein the final part comprises a plurality of phones (see col. 2, lines 3-4) (e.g.

There can be multiple phones existing for the final component of a syllable) that jointly and implicitly carry the tonal information (see col. 6, lines 53-63 and col. 7, lines 65-col. 8, lines 1-21) (e.g. It is seen by the reference that the tonal information is dependent upon the initial, final, or a combination of the two). Further Hon *et al.* discloses the different tones with different levels of pitch (see col. 6, lines 55-56) (e.g. The Hon et al. reference discloses the use of two tones in the example. It is obvious to one of skilled in the art that these tones represent either high or low tones).

However, Hon *et al.* does not specifically disclose the input being text and the output being speech.

Huang *et al.* does disclose the conversion of text to speech from learning methods of model parameters (see Abstract).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the speech processing system taught by Hon *et al.* to include a text to speech converter as taught by Huang *et al.*. The motivation to have included such an element is to have an alternative means for inputting as well as producing a synthesized speech output based upon model parameters of the system (see Huang *et al.*, Abstract) as would benefit the system of Hon *et al.* by using the tone related information as output speech for producing speech resembling the user.

Hon *et al.* and Huang *et al.* do not specifically disclose the glide dependent initials

However, Chen *et al.* does disclose the glide being included and embodied in the initial (see col. 5, lines 42-45).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the speech processing system taught by Hon *et al.* and Huang *et al.* to include glide dependent initial as taught by Chen *et al.* Further, the motivation to have included the glide embodied in the initial involves the reduction in the number of phonemes and reduces the context dependency of the consonants (see Chen *et al.*, col. 4, lines 42-46).

As to claims 24 and 25, Hon *et al.* wherein

each syllable comprises the same form having the initial and the final, the final having two phones carrying partial tonal information each. (see col. 6, lines 53-63 and col. 7, lines 65-col. 8, lines 1-21).

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hon *et al.* (US 5,680,510) in view of Huang *et al.* and in view of Chen *et al.*, as applied to claims 1 and 9 above, and further in view of Akinlabi *et al.* ("Tonal Phonology of Yoruba Clitics").

As to claim 22, Hon *et al.* in view of Huang *et al.* teaches the phone being associated with a categorical level.

However, they do not specifically disclose the levels of pitch comprising five categorical levels.

Akinlabi *et al.* discloses three tones being associated phonemically (see page 2, sect. 2, lines 1-2).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the speech processing system taught by Hon *et al*, Huang *et al.*, and Chen *et al.* with three categorical levels as taught by Akinlabi *et al.*. The motivation to have included five categorical levels involves the inclusion of other tone languages such as Yoruba, where three tones are present (see page 2, sect. 2, 1st paragraph) as would benefit the teachings of Hon *et al.* to include other tonal languages using tonal information.

11. Claim 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hon *et al.* (US 5,680,510) in view of Huang *et al.* and in view of Chen *et al.* (US 5,751,905) as applied to claim 20 above, and further in view of Chen ("Recognize Tone Languages Using Pitch Information on the Main Vowel of Each Syllable").

As to claims 23, Hon *et al.* and Huang *et al.* disclose the phone being associated with a categorical level.

However, they do not specifically disclose the levels of pitch comprising five categorical levels.

Chen discloses the use of five pitch levels (see page 4, sect. 7.1, lines 1-3).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the speech processing system taught

by Hon *et al.* Huang *et al.*, and Chen *et al.* with five categorical levels. The motivation to have included five categorical levels involves the inclusion of other tone languages such as Thai, where five tones are present (see Chen, page 4, sect. 7.1).

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paras Shah whose telephone number is (571)270-1650. The examiner can normally be reached on MON.-THURS. 7:00a.m.-4:00p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571)272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Paras Shah/
Examiner, Art Unit 2626

03/06/2008